

REMARKS

This Amendment is filed in response to the Final Office Action mailed May 1, 2008 in connection with a Request for Continued Examination and a Petition for Extension of Time. The Applicant respectfully requests reconsideration. All objections and rejections are respectfully traversed.

Claims 1-32 are now pending in the application.

Claims 1, 14, 18, 24, and 25 have been amended.

New claims 29-32 have been added.

Response to Examiner's Response to Arguments

At paragraphs 3-10 of the Final Office Action, the Examiner responds specifically to the Applicant's previous arguments. The Applicant thanks the Examiner for this detailed response, and would like to respond specifically in turn, in hopes agreement may be reached to advance the prosecution of this application.

The Examiner likens Kwan's discussion of an 802.1x "multi-host" configuration to the Applicant's use of "logical subinterfaces." Specially, the Examiner refers to paragraph 0006 of Kwan that describes how 802.1x may support:

a multiple host ("multi-host) configuration, in which one or more computing devices are coupled to a single port of the switch...

The Examiner further refers to paragraphs 0008, 0080-0081 and Fig. 6 of Kwan, which refer to a multi-host environment in which a plurality of user devices are coupled to a network access device.

The Applicant respectfully requests reconsideration of the relevance of Kwan's discussion of "multi-host" configurations/environments to what the Applicant claims.

A "multi-host" configuration, in the context of 802.1x, simply refers to a configuration where more than one computer device is allowed to access a port. The meaning of

“multi-host” is explained in well known reference texts. For example, “802.1x Port-Based Authentication” by Edwin Lyle Brown, CRC Press, 2006 describes:

There are three possible values: single host, multi-host, and multi-host with multiple authenticators. **Single host mode is what the name implies – only one mac-address is allowed on the port. Multi-host allows more than one host on the port. The port assumes the VLAN of the last Supplicant with a successful authentication.** Multi-host with multiple authentications interacts with port security features to restrict connectivity.

(emphasis added, copy of relevant page attached herewith).

When one of skill in the art reads Kwan’s discussion of 802.1x multi-host configurations/environments, he or she simply understands that Kwan’s techniques are not limited to having only a single device/host coupled to a port, but may allow several devices/hosts to be coupled to a port.

The Applicant claims something quite different than this. Amended claim 1 recites “*the shared media port being a physical interface...*” and “*partitioning the shared media port into a plurality of logical subinterfaces, wherein a logical subinterface is a logical division of a physical interface.*” Rather than simply have several different networks or subnetwork all communicate over a single undivided physical interface, the Applicant logically divides a physical interface into logical structures referred to as “logical subinterfaces”. Further, as recited in claim 1, “*each logical subinterface [is] dedicated to providing access to a different network or subnetwork.*” By using “logical subinterfaces” the Applicant is able to authenticate users to a finer level of granularity (i.e., at the subinterface level rather than at the port level) and to achieve other advantages.

A “multi-host” configuration/environment simply does not suggest what is claimed. Nothing necessarily is logically divided in a “multi-host” configuration/environment. Multiple computing devices may simply communicate over a single undivided physical interface in a “multi-host” configuration.

Accordingly, the Applicant respectfully requests reconsideration of the pending rejections and of the relevance of Kwan's mention of "multi-host" configurations/environments to what is claimed.

Claim Rejections - 35 U.S.C. §102

At paragraphs 11-21 of the Final Office Action, claims 1-5, 8, 9, 11, 14, 15, 17-19, and 21-28 were rejected under 35 U.S.C. §102(e) over Kwan et al., U.S. Publication No. 2003/0055570 (hereinafter "Kwan").

The Applicant's claim 1, representative in part of the other rejected claims, sets forth:

1. (CURRENTLY AMENDED) A method for implementing port-based network access control at a shared media port in an intermediate node, ***the shared media port being a physical interface*** coupled to a plurality of client nodes, the method comprising:

partitioning the shared media port into a plurality of logical sub-interfaces, wherein a logical subinterface is a logical division of a physical interface, each logical subinterface dedicated to providing access to a different network or subnetwork accessible through the intermediate node;

receiving a data packet at the shared media port from a first client node;

associating the received data packet with a first logical subinterface in the plurality of logical subinterfaces;

determining whether the first client node is authenticated to communicate over the first logical subinterface's dedicated network or subnetwork;

if the first client node is determined to be authenticated to communicate over the first logical subinterface's dedicated network or subnetwork, forwarding the received data packet over the first logical subinterface's dedicated network or subnetwork;

receiving a second data packet at the shared media port from a second client node;

associating the second received data packet with the first logical subinterface;

determining whether the second client node is authenticated to communicate over the first logical subinterface's dedicated network or subnetwork; and

if the second client node is determined to not be authenticated to communicate over the first logical subinterface's dedicated network or subnetwork, preventing the second received data packet from being forwarded over the first logical subinterface's dedicated network or subnetwork, while still allowing data packets from the first client node to be forwarded if the first client node is determined to be authenticated

Kwan discusses a multi-tiered network security system. *See* paragraphs 0008 and 0028. A "first level comprises physical MAC address authentication of a user device... coupled to a port of a network access device." *See* paragraph 0028 "[I]f packets received from user device 108 have a source MAC address that does not match any of the secure addresses... the network access device 102 either drops the packets or, alternately disable the port entirely." *See* paragraph 0039 and Fig. 3, box 308. "The second level comprises authentication of the user of the user device, such as authentication in accordance with the IEEE 802.1x standard." *See* paragraph 0028. "[I]f the user is not valid...network access device 102 blocks all traffic on the port except for the reception or transmission of packets related to the user authentication protocol (802.1x control packets)." *See* paragraph 0039 and Fig. 3, box 314. "The third level comprises dynamic assignment of a particular user policy to the port based on the identity of the user...", for example, to determine if resources are available to service the user device." *See* paragraph 0028 and 0042. "If sufficient resources are not available, then network access device 102 blocks all traffic on the port except for the reception or transmission of packets related to the user authentication protocol (802.1x control packets)." *See* paragraph 0039 and Fig. 3, box 322.

The Applicant respectfully directs the Examiner's attention to the claimed "*shared media port being a physical interface*" and "*partitioning the shared media port into a plurality of logical subinterfaces, wherein a logical subinterface is a logical division of a physical interface,*" and "*associating the received data packet with a first logi-*

cal subinterface in the plurality of logical subinterfaces” and “determining whether the first client node is authenticated to communicate over the first logical subinterface’s dedicated network or subnetwork.”

As discussed above in the section titled “Response to Examiner’s Response to Arguments”, Kwan does not suggest logically dividing a physical interface into “logical subinterfaces.” While Kwan does discuss multi-host configurations/environments, in which a plurality of user devices are coupled to a port, there is no mention of the port being logically divided in any manner, into any types of logical subinterfaces.

As such, Kwan cannot fairly be interpreted as teaching **associating a received data packet with a first logical subinterface in a plurality of logical subinterface**. In rejecting this limitation, the Examiner points to paragraphs 0032 and 0034 of Kwan. However paragraphs 0032 and 0034 merely discuss associating a data unit **with an output port** based on a destination address, not associating a data unit **with a specific logical subinterface** of multiple logical subinterfaces of an output port. Again, nothing akin to a logical subinterface is mentioned in these paragraphs.

Further, Kwan cannot fairly be interpreted as teaching **determining whether a first client node is authenticated to communicate over the first logical subinterface’s dedicated network or subnetwork**. In rejecting this limitation, the Examiner points to paragraph 0028 of Kwan. However, paragraph 0028 makes no mention of a network or subnetwork being associated **with a particular logical subinterface**. Paragraph 0028 simply discusses various types of authentication that may occur **on a port**.

Accordingly, the Applicant respectfully urges that Kwan is legally insufficient to anticipate the present claims under 35 U.S.C. §102 because of the absence of the Applicant’s claimed novel *“the shared media port being a physical interface”* and *“partitioning the shared media port into a plurality of logical subinterfaces, wherein a logical subinterface is a logical division of a physical interface,”* and *“associating the received data packet with a first logical subinterface in the plurality of logical subinterfaces”*

and “*determining whether the first client node is authenticated to communicate over the first logical subinterface’s dedicated network or subnetwork.*”

Claim Rejections - 35 U.S.C. §103

At paragraphs 23-31 of the Final Office Action, claims 6 and 10 were rejected under 35 U.S.C. §103(a) over Kwan in view of Ng et al., U.S. Publication No. 2005/0177865 (hereinafter “Ng”).

At paragraphs 32-36 of the Final Office Action, claims 7, 16 and 20 were rejected under 35 U.S.C. §103(a) over Kwan in view of Haverinen et al., U.S. Publication No. 2004/0208151 (hereinafter “Haverinen”).

At paragraphs 37-40 of the Final Office Action, claim 12 was rejected under 35 U.S.C. §103(a) over Kwan and in further view of Inoue et al., U.S. Patent No. 6,891,819 (hereinafter “Inoue”).

At paragraphs 41-44 of the Final Office Action, claim 13 was rejected under 35 U.S.C. §103(a) over Kwan and in further view of Roese, U.S. Publication No. 2004/0158735 (hereinafter “Roese”).

The Applicant notes that all of the claims rejected under U.S.C. §103 are dependent claims which depended from independent claims believed to be allowable for at least the reasons discussed above. The dependent claims are believed to be allowable due to their dependency, as well as for other separate reasons.

Should the Examiner believe telephonic contact would be helpful in the disposition of this Application, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

In summary, all the independent claims are believed to be in condition for allowance and therefore all dependent claims that depend there from are believed to be in condition for allowance. The Applicant respectfully solicits favorable action.

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